No. 1741 A

DESCRIPTION AND INSTRUCTIONS FOR THE USE OF

HAND GRENADES

(*FOUR PLATES*)

SEPTEMBER 28, 1917

WASHINGTON
GOVERNMENT PRINTING OFFICE
1917

War Department,
Office of the Chief of Ordnance,
Washington, September 28, 1917.

This manual is published for the information and government of the Regular Army and National Guard of the United States.

By order of the Secretary of War:

William Crozier,
Brigadier General, Chief of Ordnance.

15497—17

DESCRIPTION AND INSTRUCTIONS FOR THE USE OF HAND GRENADES.

WARNING.

1. Remember that the Hand Grenade Is Always Loaded and Cocked. It Is Always Pointed at You. It Is a Dangerous Weapon Unless Properly Handled. You Will Minimize the Chances of Injury to Yourself and Comrades if You Bear This Constantly in Mind.

2. The detonator or firing device is dangerous by itself. It is powerful enough to blow one's hand to pieces.

3. Do not use live grenades until you are thoroughly familiar with their every detail, and until you have had practice with dummy and practice grenades.

4. In practicing, never throw a live grenade unless cover is at hand, behind which the operator and spectators may seek shelter. The effective radius of the grenade is 75 yards.

5. Do not arm the grenade by drawing the safety cotter pin until you are ready to throw the grenade. If the grenade is dropped after removal of the cotter pin, assume that it is going off. Do not wait to examine it, but instantly pick it up and throw it.

6. Do not assume that you can guess when five seconds have elapsed.

7. If, in practice, a grenade fails, it should not be recovered until at least 10 minutes have elapsed. Any grenade about which there is any doubt is to be considered a misfire and to be treated as such.

8. Remember that the filling plug at the bottom of the grenade body is painted when the grenade is loaded.

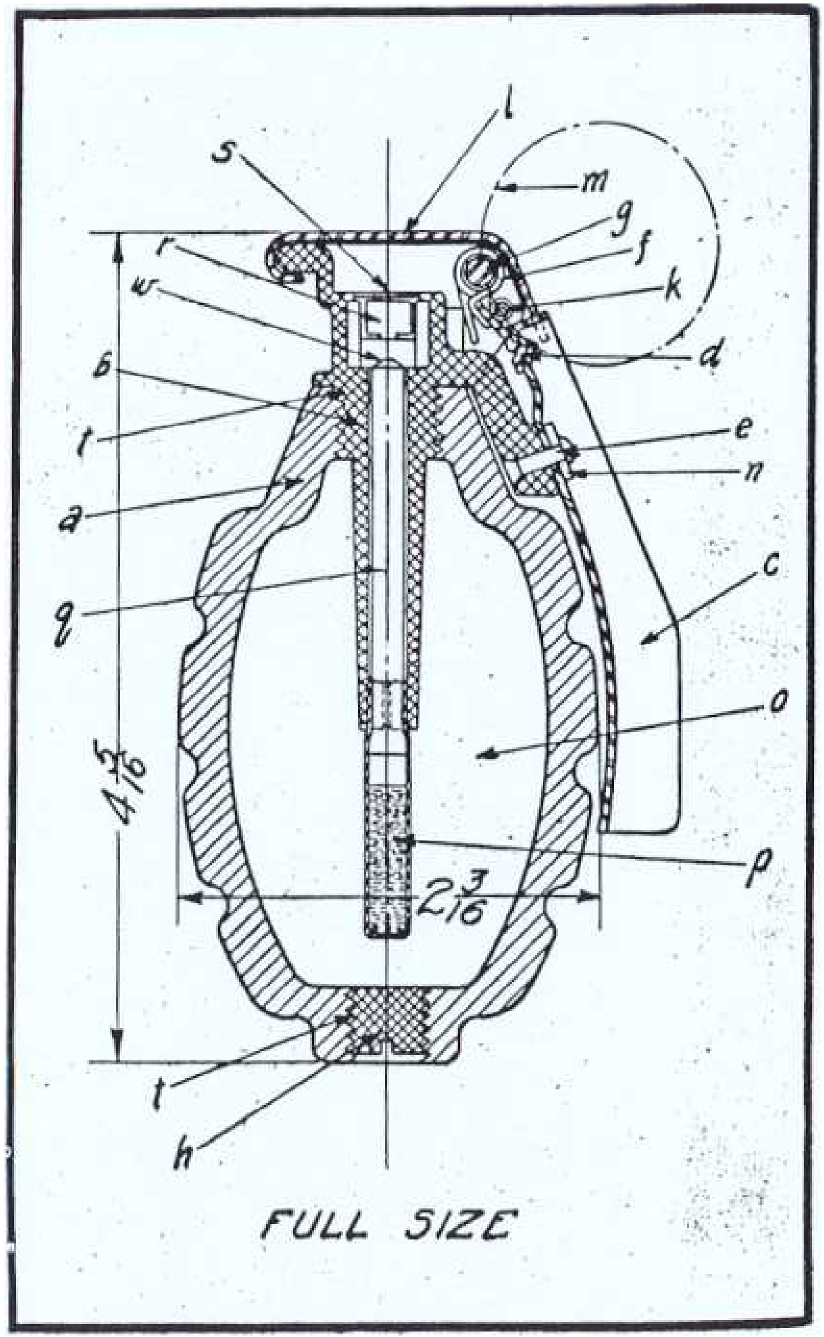
9. Do not disassemble a grenade which has failed to go off. Let an expert do it.

NOMENCLATURE.

The construction of the grenade and the names of its component parts are indicated on Plates I and IV.

a. Body.
b. Bouchon.
c. Lever.
d. Striker.
e. Rivet.
f. Spring.
g. Hinge-pin.
h. Screw.
k. Split pin.
l. Cover.
m. Split-pin ring.
n. Washer.
o. Charge.
p. Detonator.
q. Fuse.
r. Primer.
s. Tinfoil moisture cap.
t. Cement.
w. Priming powder.

PLATE



HAND GRENADE, MARK I.

ACTION OF THE GRENADE.

The action of the grenade is as follows:

The striker *d* is held in its position of full cock by the upper end of the lever *c*, the depression in the lever snapping over the firing point of the striker. The lever is kept from pivoting on the rivet *e* by the cover *l*, the notch in which fits across the upper end of the lever, the cover being kept in place by the safety split pin *k*. The grenade will be received loaded and cocked; to arm it, all that is necessary is to pull out the safety split pin *k* by means of the ring *m* (as shown on Pl. II), and, holding the lever in place by grasping the grenade in the hand, shake or pull off the cover *l*.

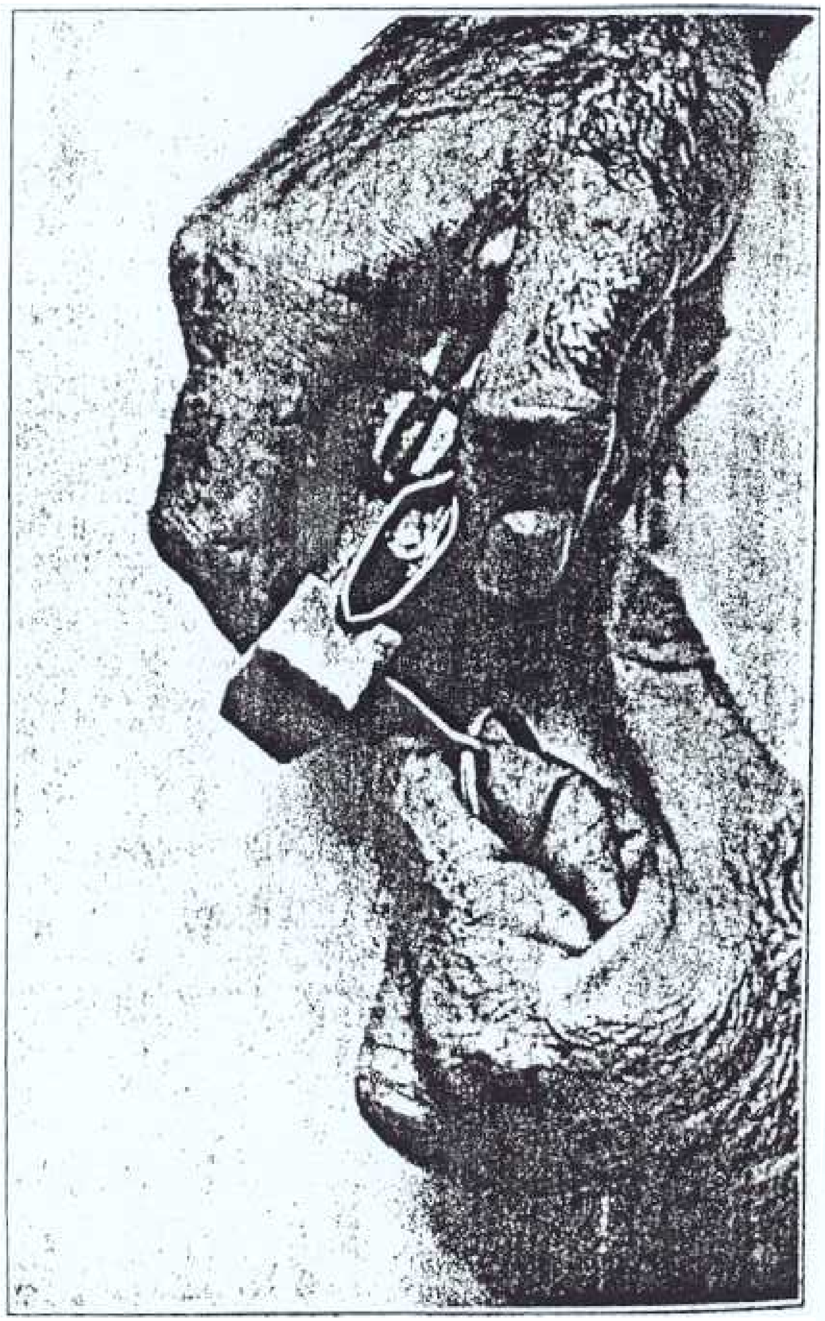
From this point on the grenade is armed and is ready to throw.

OPERATION OF GRENADE.

In a great number of the hand grenades used abroad the so-called Mills method of operation is employed. This principle involves the use of a lever which lies close to the body of the hand grenade and parallel to its longitudinal axis. The grenade and lever are grasped firmly in the hand and the cotter pin is withdrawn. As the grenade is thrown the pressure of the hand is released and the lever flies up, permitting the firing mechanism to actuate. This principle has this disadvantage: If the grenade be fumbled or accidently dropped, or if the thrower be disabled, after removal of the cotter pin, the grenade immediately becomes a serious menace to everyone in the vicinity. In the hand grenade Mark I an attempt has been made to overcome this objectionable feature by the introduction of a mechanism which is automatically operated by the act of throwing. It was noted that in the overhand throw the thumb passed obliquely over the body of the grenade, and that in the baseball throw the fingers wiped over a considerable surface of the body as the grenade left the hand. This fact has been taken advantage of in the design of the hand grenade with a view to overcoming the fault inherent in grenades of the Mills type. It must be remembered, however, that this additional safety feature is not infallible and that the grenade, if accidently dropped, may so fall as to actuate the lever.

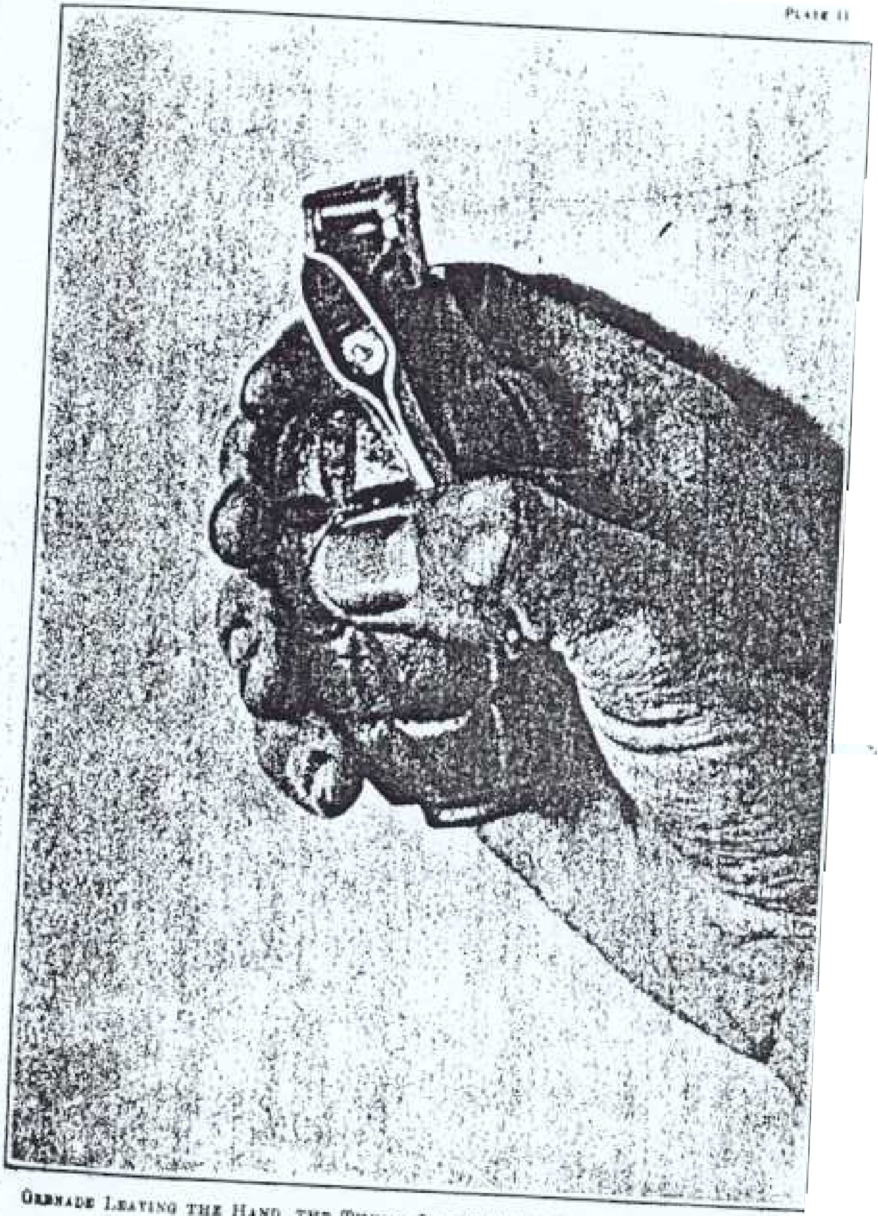
Bombers will readily acquire the knack of operating the grenade with the overhand throw. If the grenade is held properly and the thumb pressed firmly against the lever as shown in Plate II, the lever will be tripped at the instant the grenade leaves the hand. The thumb, slipping along the lever obliquely as the grenade leaves the hand, turns it through some 20°, as shown in Plate III, and frees the striker *d*; the latter, operated by a rat-trap spring, flies over so as to strike the primer *r* after perforation of the tin-foil disk which serves

PLATE II



ASSEMBLED GRENADE WITH PIN BEING DRAWN. RIGHT HAND HOLDING GRENADE IN POSITION FOR THROWING.

PLATE II



GRENADE LEAVING THE HAND, THE THUMB JUST SLIDING DOWN ALONG THE LEVER.

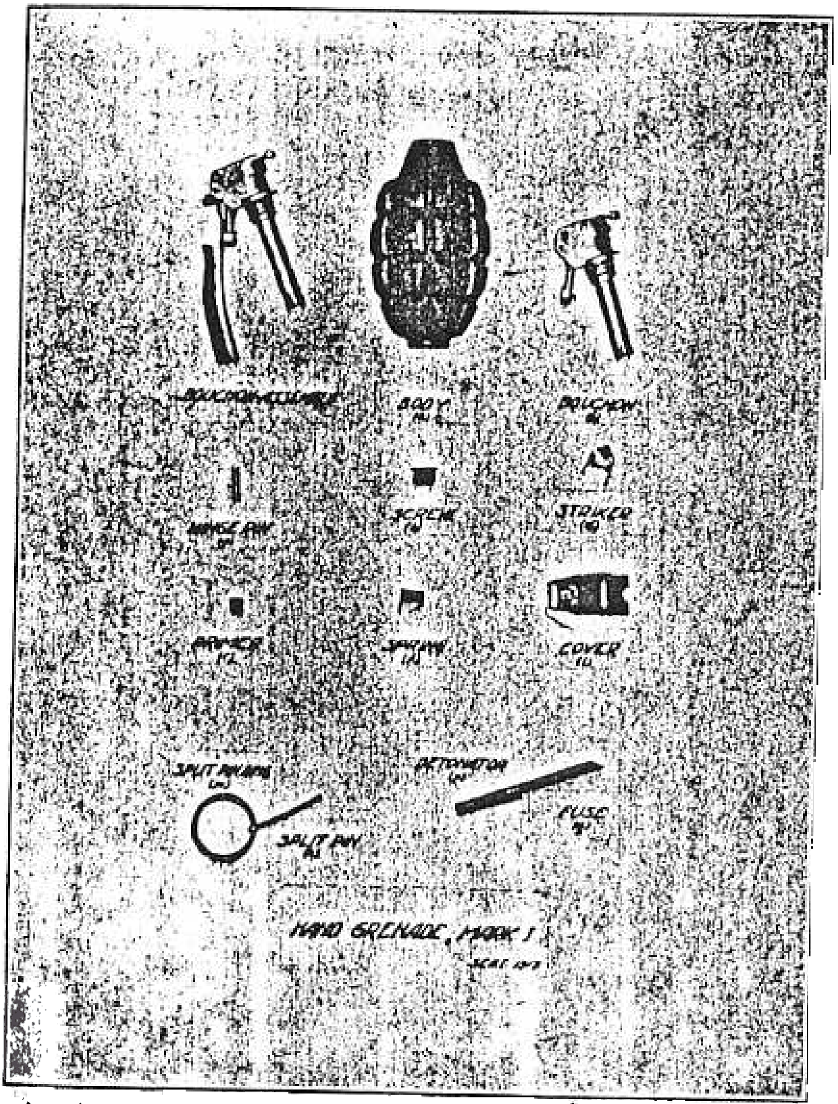
the purpose of waterproofing the grenade. The end of the fuse *q* is tipped with a priming powder composition. This is ignited by the primer and causes the fuse to burn. At the expiration of five seconds the flame from the fuse spits into the fulminate composition *p*, causing the same to detonate. The detonating wave set up by the fulminate composition is conveyed to the surrounding bursting charge of high explosive and the grenade fragmented.

DETAILED DESCRIPTION OF THE GRENADE.

The grenade is shown on Plates II and III, its component parts being shown on Plate IV. It is about the size of a large lemon, designed to fit comfortably in the hand, and weighs, ready for use, about 22 ounces. The body *a* (made of malleable iron, to secure better fragmentation than with cast iron, which tends to pulverize) is scored with deep grooves dividing it into 40 sections, further insuring proper fragmentation. The bouchon *b* is a die casting holding the entire firing mechanism of the grenade; its upper part holding the cocking mechanism, consisting of striker, spring, hinge pin, lever, and cover; and its lower, tubular portion, containing the detonating group consisting of primer, fuse, and detonator. It will be noticed that the lower end of the bouchon tube is slotted; this is done to receive the fold of the detonator, which is crimped over the fuse in such a manner that the diameter of the outside of the crimped portion is the same as that of the fuse. After the fuse has been primed and the detonator crimped onto the other end, they are placed in the bouchon tube as shown in the assembly drawing, and the portion of the tube over the detonator is tightly closed to make a tight joint. This is done to prevent any possibility of an instantaneous explosion due to the flame from the primer *s* reaching the detonator without going through the fuse.

The lever *c*, striker *d*, and cover *l* are of sheet metal pressed into form as shown. They, with the spring *f* and hinge pin *g*, form the cocking mechanism of the grenade. The detonating group consists of the primer *r*, the fuse *q*, primed on the top with a special priming composition to insure its ignition, and the detonator—a standard No. 6 fulminate detonator, 1¼ inches long. The fuse is a standard fuse, 2 inches long and timed to burn 5 seconds, plus or minus three-fifths of a second. After the primer is in place a weatherproofing disk of tinfoil is placed over it and held in place by shellac on the shoulder of the bouchon. The grenade is further weatherproofed by means of cement between the bouchon and the grenade body and on the threads of the bouchon and of the screw *h*. The screw *h* will be daubed a special color when the grenade is loaded, the color varying with the particul[illegible] explosive used.

PLATE IV



COMPONENT PARTS OF GRENADE.

PRACTICE GRENADES.

These grenades are in every way similar to the one just described, with the exception that the exploding charge, detonator, and fuse are omitted and the screw *h* is not put in. This last is done for safety's sake.

DUMMY GRENADES.

These are intended for the early practice in throwing and for training in handling and supplying quantities of grenades. They are nothing more than body castings, smoothed to remove any fins or projections from the casting.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE,
Washington, September 28, 1917.

September 28, 1917.
FORM No. 1741 H. A.
Ed. September 28-17—10,000.